REMARKS/ARGUMENTS

This reply is in response to the Final Office Action dated April 17, 2006. Claims 1-5, 8-22, 24, and 26-60 are pending in the application and stand rejected. Applicant has amended the base claims 1, 17, and 46 to more narrowly recite the unexpected results of the present invention as discussed in more detail below. Support for such narrowing amendment can be found in the specification at least at paragraph [0101] and the examples (e.g., Examples 7, 11, 14, 15 19, and 20). Applicant has also amended the other claims as shown to correct matters of form only. Entry of the foregoing amendment and reconsideration of the claims is respectfully requested.

Further, Applicant recognizes the status of the present application is after-Final. However, Applicant has added new claims 61-78 to recite additional, narrower aspects of the invention that are specific to the unexpected results reported in Tables 6-14. Applicant respectfully requests entry of these new claims since those new claims recite narrower subject matter than that already presented in the original claims considered by the Examiner; therefore no further consideration or additional search is required. Entry of the foregoing new claims is respectfully requested.

Claims 1-5, 8-22, 24, and 26-60 stand rejected under 35 U.S.C. § 103(a) as obvious over Whaley (US Patent No. 6,359,072) hereafter "Whaley."

Applicant respectfully traverses the rejection. The films of the present invention are surprising and unexpected. See, e.g., Examples 7, 15, and 19-20. The films exhibited a surprising balance of desirable optical, physical, and mechanical properties. More significantly, the mechanical properties of the claimed films are significantly improved due to the melt index and melt index ratio ($I_{21.6}/I_{2.16}$) of the individual components. As such, it has been discovered that the melt index ($MI_{2.16}$) and melt index ratio ($I_{21.6}/I_{2.16}$) are result-determinative values to obtain a desirable balance of optical, physical, and mechanical properties.

At best, in view of Whaley, one skilled in the art might find it obvious to try various combinations of CDBI, densities, melt indexes, melt index ratios and Mw/Mn ratios. However, this is not the standard of 35 U.S.C. § 103. In re Geiger, 2 USPQ2d 1276 (Fed. Cir. 1987) citing In re Goodwin, 576 F.2d 375, 377, 198 USPQ 1, 3 (CCPA 1978); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Tomlinson , 363 F.2d 928, 150 USPQ 623 (CCPA 1966). An

invention is merely "obvious to try" if the prior art gives either no indication of which parameters are critical or no direction as to which of many possible choices is likely to be successful. Merck & Co. Inc. v. Biocraft Laboratories Inc., 10 USPQ2d 1843 (Fed. Cir. 1989). Whaley discloses a vast range of MIs (0.1 dg/min to 1,000 dg/min) and densities. See, Whaley at col. 5, ll. 41-55. Whaley also discloses melt index ratios of less than 30. Id. at Table 1.

Therefore, Whaley does not teach, show or suggest a film comprising: a polyethylene copolymer having the unique combination of a CDBI of at least 70%, a melt index $I_{2.16}$ of from 0.1 to 15 g/10 min., a density of from 0.910 to 0.940 g/cm^3, a melt index ratio $I_{21.6}/I_{2.16}$ of from 30 to 80, and an Mw/Mn ratio of from 2.5 to 5.5; and a low density polyethylene (LDPE) having a melt index $I_{2.16}$ of from 0.1 to 10 g/10 min and a density of from 0.920 to 0.940 g/cm^3, as recited in every claim. Such unique combination of physical properties produces a shrink film having a surprising and unexpected balance of optical, physical, and mechanical properties. Accordingly, withdrawal of the rejection is respectfully requested.

As stated in the specification, "It has been difficult to obtain films combining good optical properties, such as clarity, haze and gloss, good shrink properties, and sufficient holding force, as well as good mechanical properties, such as puncture resistance and tear strength." See, Applicant's specification at paragraph [0006]. According to the present invention, it appears the MI and MIR (melt index ratio) of the respective components is a result-determinative value for shrink films having a desirable balance of optical, mechanical, and physical properties. Such result-determinative value has not been taught, shown, or suggested by the prior art of record.

The desirable balance of optical, physical, and mechanical properties of the resulting films according to the claimed invention, as shown by Examples 7, 15, and 19-20, is surprising and unexpected. Such results are not dependent on the thickness of the studied films contrary to the Examiner's assertion. Indeed, the unexpected mechanical properties of the films, discussed in more detail below and previously presented, are not due to the varying thicknesses of the exemplary films. The relevant mechanical properties are normalized to the film thickness and reported in units of "per thickness." See, e.g., specification at paragraph [0137]. Therefore, manipulating the thickness of the films would not obtain any different result.

Table 1 is taken from Tables 7, 8, and 10 of the specification and reports certain mechanical properties of the resulting films 7, 15, and 19- 20 that are normalized to film thickness.

Table 1:

	7	15	19	20
Composition (wt %):				
Component B:	25% LDPE-A	25% LDPE-C	20% LDPE-D	20% LDPE-D
Component A:	75% Resin A	75% Resin A	80% Resin B	80% Resin C
B: Melt Index $I_{2.16}$ (g/10min)	0.3	1.0	0.75	0.75
B: Density (g/cm^3)	0.922	0.920	0.923	0.923
A: Melt Index $I_{2.16}$ (g/10min)	1.0	1.0	0.9	0.5
A: Density (g/cm^3)	0.920	0.920	0.925	0.925
Dart Drop Impact, Method A, Face (g/μm)			3.48	6.61
Puncture Resistance Damaging Energy (mJ/μm)	194	137	157	183
Puncture Resistance Damaging Force (N/μm)	2.38	2.02	2.19	2.56
Plastic Force, MD (cN/15mm)	2	0.8		
Thermal Force, MD (N/15mm)	2.92	1.48	1.35	1.37
Thermal Force, TD (N/15mm)	3.38	1.40	1.19	1.20

Considering Examples 7 and 15 in more detail, Example 7 is a film produced from 75% Resin A and 25% LDPE-C, and Example 15 is 75% Resin A and 25% LDPE-A. The differences between LDPE-C and LDPE-A are reported in Table 5 of the specification. There it is shown that the densities of LDPE-C and LDPE-A are similar (0.920 g/cm^{3}and 0.922 g/cm^3, respectively). However, the melt indexes ($MI_{2,16}$) of LDPE-C and LDPE-A are vastly different (1.0 g/10 min and 0.2 g/10 min, respectively). Such differences in MI produced films having similar, desirable optical and physical properties but significantly different mechanical properties, e.g., puncture resistance damaging energy (194 mJ/μm vs. 137 mJ/μm-more than 40% difference), machine direction plastic force (2 cN/15mm vs. 0.8 cN/15mm- about 150% difference), and machine direction thermal force (2.92 N/15mm vs. 1.48 N/15mm-about 97% difference). Such results are normalized to thickness of the films, and are significant and surprising.

Considering Examples 19 and 20 in more detail, Example 19 is a film produced from 80% Resin B and 20% LDPE-D, and Example 20 is 80% Resin C and 20% LDPE-D. Here, the LDPE component is the same, but the polyethylene resin is varied. The densities of Resin B and Resin C are identical, 0.925 g/cm^3. However, the melt indexes ($MI_{2.16}$) of Resins B and C are vastly different, 0.9 and 0.5 g/10 min. Such differences in MI produced films having similar optical properties but significantly different mechanical properties for puncture resistance damaging energy (157 mJ/μm vs. 183 mJ/μm- about 17% difference) and Dart Drop Impact at Face (3.48 g/ μm vs. 6.61 g/μm- about 90% difference). Again, those results are normalized to the thickness of the films, and are significant and surprising.

One of ordinary skill in the art including the Examiner, would have thought such mechanical properties would be similar, if not identical, because the components of the blends are similar, if not identical. That has proven not to be the case. LDPEs and polyethylene copolymers having "similar physical properties" have been proven to provide films having significantly different mechanical properties, yet maintain the desirable balance of optical and physical properties. Such results are nothing short of surprising and unexpected.

In view of the above, comparisons within "the lines of scientific procedures" have been provided. The films of the present invention exhibit significant and unexpected mechanical properties and more significantly, exhibit a balance between desirable optical, physical, and mechanical properties not previously available or suggested. Whaley does not teach, show, or suggest such a unique combination of properties to provide shrink films having desirable optical, physical, and mechanical properties. Therefore, the claimed invention is not obvious in view of Whaley. Withdrawal of the rejection and allowance of the claims is respectfully requested.

Claims 1-5, 8-22, 24, and 26-60 stand rejected under 35 U.S.C. § 103(a) as obvious over Yap et al. (US Patent No. 6,482,532) hereafter "Yap."

Applicant respectfully traverses the rejection. The argument presented above is equally applicable to Yap. Withdrawal of the rejection and allowance of the claims is respectfully requested.

CONCLUSION

Having addressed all issues set out in the office action, Applicant respectfully submits that the pending claims are now in condition for allowance. Applicant invites the Examiner to telephone the undersigned attorney if there are any issues outstanding which have not been addressed to the Examiner's satisfaction.

Respectfully submitted,

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